

### AMENDMENTS TO THE CLAIMS

The listing below of the claims will replace all prior versions and listings of claims in the present application:

#### **Listing of Claims:**

Claim 1 (currently amended): A method of producing a molybdenum-silicide-based heating element ~~containing essentially molybdenum silicide and alloys of that material~~, said method comprising the steps of:

providing powdered molybdenum aluminum silicide material  $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$ ;

~~producing a heating element material that contains substantially  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  and  $\text{Al}_2\text{O}_3$  by mixing a~~ the powdered molybdenum aluminum silicide  $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$  with  $\text{SiO}_2$  to provide a heating element material mixture, wherein the  $\text{SiO}_2$  ~~replaces bentonite clay in molybdenum silicide heating element compositions containing bentonite clay and is at least 98% pure, and wherein~~ the heating element material is free of bentonite;

forming a heating element from the ~~produced~~ heating element material mixture to provide a formed heating element; and

sintering the formed heating element, wherein after sintering the heating element contains substantially  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  and  $\text{Al}_2\text{O}_3$ , wherein x lies in the range of 0.4 – 0.6, and the heating element includes on its surface an oxide layer consisting essentially of  $\text{Al}_2\text{O}_3$ , which oxide layer that does not peel from the surface of the heating element under thermal cycling of the heating element

between room temperature and about 1500°C, whereby so that heating oven contamination in the form of peeled heating element oxide layer particles in within a heating oven containing the heating element is prevented.

Claim 2 (currently amended): A method according to Claim 1, wherein the  $\text{SiO}_2$  present in the mixture is a silicate and that does not affect molybdenum silicide crystal lattice symmetry.

Claim 3 (canceled)

Claim 4 (previously presented): A method according to Claim 1, wherein x lies in the range of 0.45 - 0.55.

Claim 5 (currently amended): A method according to Claim 1, including the step of partially substituting at least one of Re and W for molybdenum in the material  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  ~~for molybdenum~~.

Claim 6 (previously presented): An electrical heating element ~~that is substantially molybdenum silicide type and alloys of that material, said element consisting essentially of the materials  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  and  $\text{Al}_2\text{O}_3$ , wherein x lies in the range of 0.4 - 0.6; wherein  $\text{SiO}_2$  having a purity of at least 98% is included in the material for replacing bentonite clay in molybdenum silicide heating element compositions containing bentonite clay; and wherein the heating element includes on its surface an oxide layer consisting essentially of  $\text{Al}_2\text{O}_3$ , which oxide~~

~~layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented~~ produced in accordance with the method claimed in claim 1.

Claim 7 (canceled)

Claim 8 (previously presented): A heating element according to Claim 6, wherein x lies in the range of 0.45 - 0.55.

Claim 9 (previously presented): A heating element according to Claim 6, wherein molybdenum in the material  $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$  is partially replaced with at least one of Re and W.

Claim 10 (previously presented): A method according to claim 2, wherein the silicate is mullite.

Claim 11 (previously presented): A method according to claim 2, wherein the silicate is sillimanite.